

=> file biosis caba caplus embase japio lifesci medline scisearch

=> e vermeij paul/au

```
E1          1      VERMEIJ P CLAUDIA WIETEK/AU
E2          1      VERMEIJ P DR/AU
E3         35 --> VERMEIJ PAUL/AU
E4        106      VERMEIJ PIETER/AU
E5          1      VERMEIJ POST J/AU
E6          1      VERMEIJ POST JANINE/AU
E7         14      VERMEIJ R/AU
E8         18      VERMEIJ R J/AU
E9          6      VERMEIJ ROLF/AU
E10         1      VERMEIJ ROLF J/AU
E11        23      VERMEIJ RUDOLF J/AU
E12         1      VERMEIJ RUDOLF JACQUES/AU
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=> s e1-e6 and lawsonia

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L1          11  ("VERMEIJ P CLAUDIA WIETEK"/AU OR "VERMEIJ P DR"/AU OR "VERMEIJ
                PAUL"/AU OR "VERMEIJ PIETER"/AU OR "VERMEIJ POST J"/AU OR "VERMEIJ POST JANINE"/AU) AND LAWSONIA
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=> dup rem l1

PROCESSING COMPLETED FOR L1

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L2          11  DUP REM L1 (0 DUPLICATES REMOVED)
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=> d bib ab kwic 1-

YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y/(N):y

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L2  ANSWER 1 OF 11  BIOSIS  COPYRIGHT (c) 2010 The Thomson Corporation  on STN
AN  2010:172480  BIOSIS <<LOGINID::20100916>>
DN  PREV201000172480
TI   ***Lawsonia***  intracellularis subunit vaccine.
AU   ***Vermeij, Paul***  [Inventor]; Anonymous
CS   St Anthonis, Netherlands
ASSIGNEE: Intarvet International B V
PI   US 07662390 20100216
SO   Official Gazette of the United States Patent and Trademark Office Patents,
      (FEB 16 2010)
      CODEN: OGUPE7. ISSN: 0098-1133.
DT   Patent
LA   English
ED   Entered STN: 24 Mar 2010
      Last Updated on STN: 24 Mar 2010
AB   The present invention relates to nucleic acid sequences encoding novel
      ***Lawsonia***  intracellularis proteins. It furthermore relates to DNA
      fragments, recombinant DNA molecules and live recombinant carriers
      comprising these sequences. Also it relates to host cells comprising such
      nucleic acid sequences, DNA fragments, recombinant DNA molecules and live
      recombinant carriers. Moreover, the invention relates to proteins encoded
      by these nucleotide sequences and to their use for the manufacturing of
      vaccines. The invention also relates to vaccines for combating
      ***Lawsonia***  intracellularis infections and methods for the
      preparation thereof. Finally the invention relates to diagnostic tests
      for the detection of ***Lawsonia***  intracellularis DNA, the detection
      of ***Lawsonia***  intracellularis antigens and of antibodies against
      ***Lawsonia***  intracellularis.
TI   ***Lawsonia***  intracellularis subunit vaccine.
AU   ***Vermeij, Paul***  [Inventor]; Anonymous
```

AB The present invention relates to nucleic acid sequences encoding novel  
 \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA  
 fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it. . . these nucleotide sequences  
 and to their use for the manufacturing of vaccines. The invention also  
 relates to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis  
 infections and methods for the preparation thereof. Finally the invention  
 relates to diagnostic tests for the detection of \*\*\*Lawsonia\*\*\*  
 intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis  
 antigens and of antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

IT Major Concepts  
 Pharmacology; Infection; Human Medicine (Medical Sciences)

IT Diseases  
 \*\*\*Lawsonia\*\*\* intracellularis infection: bacterial disease,  
 prevention and control

IT Chemicals & Biochemicals  
 \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine: immunologic-drug,  
 immunostimulant-drug

L2 ANSWER 2 OF 11 BIOSIS COPYRIGHT (c) 2010 The Thomson Corporation on STN  
 AN 2009:424780 BIOSIS <<LOGINID::20100916>>  
 DN PREV200900425883  
 TI \*\*\*Lawsonia\*\*\* intracellularis vaccine.  
 AU Jacobs, Antonius Arnoldus Christiaan [Inventor]; Anonymous;  
 \*\*\*Vermeij,\*\*\*  
 \*\*\* Paul\*\*\* [Inventor]

CS Boxmeer, Netherlands  
 ASSIGNEE: Intervet International B V

PI US 07491401 20090217

SO Official Gazette of the United States Patent and Trademark Office Patents,  
 (FEB 10 2009)  
 CODEN: OGUPE7. ISSN: 0098-1133.

DT Patent

LA English

ED Entered STN: 15 Jul 2009  
 Last Updated on STN: 15 Jul 2009

AB The present invention relates i.a. to nucleic acid sequences encoding  
 novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates  
 to DNA fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it relates to host cells comprising such  
 nucleic acid sequences, DNA fragments, recombinant DNA molecules and live  
 recombinant carriers. Moreover, the invention relates to proteins encoded  
 by these nucleotide sequences. The invention also relates to vaccines for  
 combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods for  
 the preparation thereof. Finally the invention relates to diagnostic  
 tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the  
 detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies  
 against \*\*\*Lawsonia\*\*\* intracellularis.

TI \*\*\*Lawsonia\*\*\* intracellularis vaccine.

AU Jacobs, Antonius Arnoldus Christiaan [Inventor]; Anonymous;  
 \*\*\*Vermeij,\*\*\*  
 \*\*\* Paul\*\*\* [Inventor]

AB The present invention relates i.a. to nucleic acid sequences encoding  
 novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates  
 to DNA fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it. . . carriers. Moreover, the  
 invention relates to proteins encoded by these nucleotide sequences. The

invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods for the preparation thereof. Finally the invention relates to diagnostic tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

IT Major Concepts  
Pharmacology; Clinical Immunology (Human Medicine, Medical Sciences); Infection

IT Diseases  
\*\*\*Lawsonia\*\*\* intracellularis infection: bacterial disease, drug therapy

IT Chemicals & Biochemicals  
\*\*\*Lawsonia\*\*\* intracellularis vaccine: immunologic-drug, immunostimulant-drug, vaccine

L2 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN

AN 2009:1500289 CAPLUS <<LOGINID::20100916>>

DN 152:9929

TI Vaccine comprising carbohydrate composition from \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination vaccines comprising the same

IN Jacobs, Antonius Arnoldus Christiaan; \*\*\*Vermeij, Paul\*\*\* ; Segers, Ruud Philip Antoon Maria; Schrier, Carla Christina

PA Intervet International B.V., Neth.

SO PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	WO 2009144088	A2	20091203	WO 2009-EP54516	20090416
	WO 2009144088	A3	20100506		
	W:				
	AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,				
	CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES,				
	FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE,				
	KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,				
	ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH,				
	PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ,				
	TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU,				
	IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI,				
	SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,				
	TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,				
	ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
PRAI	EP 2008-154764	A	20080418		
	US 2008-46161P	P	20080418		
	EP 2008-105738	A	20081106		
	US 2008-111756P	P	20081106		

AB The present invention pertains to the use of a non-live carbohydrate contg. compn., the carbohydrate being also found in live \*\*\*Lawsonia\*\*\* intracellularis cells in assocn. with the outer cell membrane of these cells, for the manuf. of a vaccine for protection against an infection with L. intracellularis, the vaccine being in a form suitable for systemic administration. The invention also pertains to a combination vaccine comprising L. intracellularis carbohydrate compn., and antigens from Mycoplasma hyopneumoniae and Porcine circovirus.

TI Vaccine comprising carbohydrate composition from \*\*\*Lawsonia\*\*\*  
 intracellularis cell membrane and combination vaccines comprising the same  
 IN Jacobs, Antonius Arnoldus Christiaan; \*\*\*Vermeij, Paul\*\*\* ; Segers,  
 Ruud Philip Antoon Maria; Schrier, Carla Christina  
 AB The present invention pertains to the use of a non-live carbohydrate  
 contg. compn., the carbohydrate being also found in live \*\*\*Lawsonia\*\*\*  
 intracellularis cells in assocn. with the outer cell membrane of these  
 cells, for the manuf. of a vaccine for protection. . .  
 ST vaccine carbohydrate \*\*\*Lawsonia\*\*\* intracellularis cell membrane;  
 \*\*\*Lawsonia\*\*\* Mycoplasma Porcine circovirus combination vaccine  
 IT Oils  
 RL: MOA (Modifier or additive use); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)  
 (Biodegradable; vaccine comprising carbohydrate compn. from  
 \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination  
 vaccines  
 comprising same)  
 IT Paraffin oils  
 RL: AGR (Agricultural use); MOA (Modifier or additive use); THU  
 (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (adjuvant comprises droplets of; vaccine comprising carbohydrate compn.  
 from \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination  
 vaccines comprising same)  
 IT \*\*\*Lawsonia\*\*\* intracellularis  
 (carbohydrate compn. from killed; vaccine comprising carbohydrate  
 compn. from \*\*\*Lawsonia\*\*\* intracellularis cell membrane and  
 combination vaccines comprising same)  
 IT Polysaccharides  
 RL: AGR (Agricultural use); THU (Therapeutic use); BIOL (Biological  
 study); USES (Uses)  
 (compn.; vaccine comprising carbohydrate compn. from \*\*\*Lawsonia\*\*\*  
 intracellularis cell membrane and combination vaccines comprising same)  
 IT Livestock  
 Sus scrofa domestica  
 Swine  
 (enteritis or ileitis in; vaccine comprising carbohydrate compn. from  
 \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination  
 vaccines  
 comprising same)  
 IT Biodegradable materials  
 (oil, adjuvant comprises droplets of; vaccine comprising carbohydrate  
 compn. from \*\*\*Lawsonia\*\*\* intracellularis cell membrane and  
 combination vaccines comprising same)  
 IT Emulsions  
 (oil-in-water, as adjuvant; vaccine comprising carbohydrate compn. from  
 \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination  
 vaccines  
 comprising same)  
 IT Carbohydrates  
 RL: AGR (Agricultural use); THU (Therapeutic use); BIOL (Biological  
 study); USES (Uses)  
 (protein free compn.; vaccine comprising carbohydrate compn. from  
 \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination  
 vaccines  
 comprising same)  
 IT Immunization  
 (vaccination; vaccine comprising carbohydrate compn. from

\*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination vaccines comprising same)

IT Cell membrane  
 Enteritis  
 Ileitis  
 Immune adjuvants  
 Mycoplasma hyopneumoniae  
 Porcine circovirus  
 Vaccines  
 (vaccine comprising carbohydrate compn. from \*\*\*Lawsonia\*\*\* intracellularis cell membrane and combination vaccines comprising same)

L2 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN

AN 2009:1294282 CAPLUS <<LOGINID::20100916>>

DN 151:446115

TI Combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus

IN Jacobs, Antonius Arnoldus Christiaan; \*\*\*Vermeij, Paul\*\*\* ; Segers, Ruud Philip Antoon Maria; Schrier, Carla Christina

PA Intervet International B.V., Neth.

SO PCT Int. Appl., 23pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2009127684	A1	20091022	WO 2009-EP54517	20090416
	W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI EP 2008-154765 A 20080418

US 2008-46188P P 20080418

AB The present invention pertains to a vaccine comprising in combination non-live antigens of \*\*\*Lawsonia\*\*\* intracellularis, of Mycoplasma hyopneumoniae and Porcine circo virus, and a pharmaceutically acceptable carrier. The invention also pertains to a kit comprising a first container having non-live antigens of \*\*\*Lawsonia\*\*\* intracellularis, one or more other containers having Mycoplasma hyopneumoniae and porcine circo virus antigens and instructions for mixing the antigens of \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae, and Porcine circo virus to formulate one combination vaccine suitable for systemic vaccination.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus

IN Jacobs, Antonius Arnoldus Christiaan; \*\*\*Vermeij, Paul\*\*\* ; Segers, Ruud Philip Antoon Maria; Schrier, Carla Christina

AB The present invention pertains to a vaccine comprising in combination non-live antigens of \*\*\*Lawsonia\*\*\* intracellularis, of Mycoplasma hyopneumoniae and Porcine circo virus, and a pharmaceutically acceptable carrier. The invention also pertains to a kit comprising a first container having non-live antigens of \*\*\*Lawsonia\*\*\* intracellularis, one or more other containers having Mycoplasma hyopneumoniae and porcine circo virus antigens and instructions for mixing the antigens of \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae, and Porcine circo virus to formulate one combination vaccine suitable for systemic vaccination.

ST vaccine combination \*\*\*Lawsonia\*\*\* Mycoplasma porcine circo virus

IT Paraffin oils  
 RL: AGR (Agricultural use); MOA (Modifier or additive use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (adjuvant comprises droplets of; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Medical goods  
 (biodegradable, oil, adjuvant comprises droplets of; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT \*\*\*Lawsonia\*\*\* intracellularis  
 (carbohydrate compn. from killed; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Carbohydrates  
 RL: AGR (Agricultural use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (carbohydrate-contg. compn. from outer cell membrane, \*\*\*Lawsonia\*\*\* antigen from; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Respiratory system disease  
 (chronic, M. hyopneumoniae-assocd.; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Mycoplasma hyopneumoniae  
 Porcine circovirus  
 Vaccines  
 (combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Antigens  
 RL: AGR (Agricultural use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (combination; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Biodegradable materials  
 (medical, oil, adjuvant comprises droplets of; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Immune adjuvants  
 (oil in water, contg. oil droplets of sub-micrometer size.; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Microemulsions  
 (oil-in-water, biodegradable oil-in-water, adjuvants; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Cell membrane  
 (outer, \*\*\*Lawsonia\*\*\* antigen from carbohydrate-contg. compn. from; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Disease, animal  
 (postweaning multisystemic wasting syndrome, porcine circo virus-assocd.; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Intestinal disease  
 (proliferative, L. intracellularis-assocd.; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Immunization  
 (vaccination, systemic; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

IT Animalia  
 Animals  
 Sus scrofa domestica  
 Swine  
 (vaccination; combination vaccine for protection against \*\*\*Lawsonia\*\*\* intracellularis, Mycoplasma hyopneumoniae and porcine circo virus)

L2 ANSWER 5 OF 11 BIOSIS COPYRIGHT (c) 2010 The Thomson Corporation on STN  
 AN 2006:243704 BIOSIS <<LOGINID::20100916>>  
 DN PREV200600251697  
 TI \*\*\*Lawsonia\*\*\* intracellularis vaccine.  
 AU Jacobs, Antonius Arnoldus Christiaan [Inventor]; \*\*\*Vermeij, Paul\*\*\*  
 [Inventor]  
 CS Kessel, Netherlands  
 ASSIGNEE: Akzo Nobel N.V.  
 PI US 06921536 20050726  
 SO Official Gazette of the United States Patent and Trademark Office Patents,  
 (JUL 26 2005)  
 CODEN: OGUPE7. ISSN: 0098-1133.  
 DT Patent  
 LA English  
 ED Entered STN: 26 Apr 2006  
 Last Updated on STN: 26 Apr 2006  
 AB The present invention relates i.a. to nucleic acid sequences encoding novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA molecules and live recombinant carriers comprising these sequences. Also it relates to host cells comprising such nucleic acid sequences, DNA fragments, recombinant DNA molecules and live recombinant carriers. Moreover, the invention relates to proteins encoded by these nucleotide sequences. The invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods for the preparation thereof. Finally the invention relates to diagnostic tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

TI \*\*\*Lawsonia\*\*\* intracellularis vaccine.  
 AU Jacobs, Antonius Arnoldus Christiaan [Inventor]; \*\*\*Vermeij, Paul\*\*\*  
 [Inventor]  
 AB The present invention relates i.a. to nucleic acid sequences encoding  
 novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates  
 to DNA fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it. . . carriers. Moreover, the  
 invention relates to proteins encoded by these nucleotide sequences. The  
 invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\*  
 intracellularis infections and methods for the preparation thereof.  
 Finally the invention relates to diagnostic tests for the detection of  
 \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\*  
 intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\*  
 intracellularis.  
 IT Major Concepts  
 Pharmacology; Clinical Immunology (Human Medicine, Medical Sciences);  
 Infection; Clinical Chemistry (Allied Medical Sciences)  
 IT Diseases  
 \*\*\*Lawsonia\*\*\* intracellularis infection: bacterial disease,  
 diagnosis  
 IT Chemicals & Biochemicals  
 \*\*\*Lawsonia\*\*\* intracellularis vaccine: immunologic-drug,  
 immunostimulant-drug, vaccine  
 IT Methods & Equipment  
 \*\*\*Lawsonia\*\*\* intracellularis vaccine preparation method:  
 laboratory techniques; \*\*\*Lawsonia\*\*\* intracellularis DNA detection  
 method: laboratory techniques, diagnostic techniques, clinical  
 techniques; \*\*\*Lawsonia\*\*\* intracellularis antigen detection  
 method: laboratory techniques, diagnostic techniques, clinical  
 techniques; \*\*\*Lawsonia\*\*\* intracellularis antibody detection  
 method: laboratory techniques, diagnostic techniques, clinical  
 techniques  
 ORGN Classifier  
 Facultatively Anaerobic Gram-Negative Rods 06700  
 Super Taxa  
 Eubacteria; Bacteria; Microorganisms  
 Organism Name  
 \*\*\*Lawsonia\*\*\* intracellularis (species)  
 Taxa Notes  
 Bacteria, Eubacteria, Microorganisms

L2 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2005:696935 CAPLUS <<LOGINID::20100916>>  
 DN 143:192288  
 TI DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic  
 proteins, their sequences and use in manufacturing of pig vaccines against  
 L. intracellularis  
 IN \*\*\*Vermeij, Paul\*\*\*  
 PA Akzo Nobel N. V., Neth.  
 SO PCT Int. Appl., 99 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	WO 2005070958	A2	20050804	WO 2005-EP562	20050118



WO 2005070958	A3	20051124		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, SM			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2005206291	A1	20050804	AU 2005-206291	20050118
AU 2005206291	B2	20100603		
CA 2554472	A1	20050804	CA 2005-2554472	20050118
EP 1709067	A2	20061011	EP 2005-701094	20050118
EP 1709067	B1	20100609		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
BR 2005007017	A	20070605	BR 2005-7017	20050118
JP 2007537721	T	20071227	JP 2006-550044	20050118
AT 470673	T	20100615	AT 2005-701094	20050118
MX 2006008217	A	20070523	MX 2006-8217	20060719
KR 2006134054	A	20061227	KR 2006-715908	20060807
US 20090053228	A1	20090226	US 2008-587067	20081105
PRAI EP 2004-100202	A	20040122		
EP 2004-100203	A	20040122		
EP 2004-100204	A	20040122		
EP 2004-100205	A	20040122		
EP 2004-100206	A	20040122		
EP 2004-100208	A	20040122		
EP 2004-100209	A	20040122		
EP 2004-100210	A	20040122		
EP 2004-100211	A	20040122		
WO 2005-EP562	W	20050118		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention provides DNA mols. and polypeptides of various \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins that were demonstrated to bind to polyclonal pig and chicken serum. The invention relates that said immunogenic proteins possessed mol. wts. of 75-kilodaltons (kDa), 27-kDa, 62-kDa, 57-kDa, 74-kDa, 44-kDa, 43-kDa, 26/31-kDa and 101-KDa, based on SDS-PAGE gel electrophoresis. The invention also provides for the use of said DNA mols. and polypeptides in manufg. of a vaccine for combating L. intracellularis infections in pigs by inducing humoral immunity. The invention further provides antibodies specific for said L. intracellularis immunogenic proteins, their detection and their use in manufg. of a vaccine and/or in diagnosis. Still further, the invention provides a vaccine comprising said L. intracellularis DNA mols. and polypeptides and an addnl. antigen derived from pig pathogens, such as viruses and/or microorganisms. Finally, the invention provides the DNA and amino acid sequences of said L. intracellularis immunogenic proteins. In the examples, the invention demonstrated that pigs immunized with a recombinant vaccine compose of disclosed 75-kDa, 44-kDa, 26/31-kDa and 27-kDa immunogenic proteins were protected against an L. intracellularis challenge.

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

TI DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic

proteins, their sequences and use in manufacturing of pig vaccines against L. intracellularis

IN \*\*\*Vermeij, Paul\*\*\*

AB The invention provides DNA mols. and polypeptides of various \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins that were demonstrated to bind to polyclonal pig and chicken serum. The invention relates that said immunogenic. . .

ST DNA sequence immunogenic protein gene \*\*\*Lawsonia\*\*\* use vaccine; \*\*\*Lawsonia\*\*\* antigen sequence recombinant prodn use vaccine

diagnosis;

antibody anti \*\*\*Lawsonia\*\*\* antigen use diagnosis vaccine manuf; pig humoral immunity \*\*\*Lawsonia\*\*\* immunogenic protein vaccine

IT Antigens

RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(101-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Gene, microbial

RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(2008; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Antigens

RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(26/31-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Antigens

RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(27-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Gene, microbial

RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(3123; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Antigens

RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(43-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Gene, microbial

RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (4320; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (44-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (4423; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (5074; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (5293; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (5464; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (5473; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (5669; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (57-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (62-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (74-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (75-kilodalton; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT DNA sequences  
 \*\*\*Lawsonia\*\*\* intracellularis  
 Protein sequences  
 (DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Vaccines  
 (DNA and protein; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Molecular cloning  
 ( \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Promoter (genetic element)  
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
 ( \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Immunostimulants  
 (adjuvants, of vaccine; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT Antibodies and Immunoglobulins  
 RL: ANT (Analyte); ARG (Analytical reagent use); DGN (Diagnostic use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (anti-L.intracellularis antigen-specific; antibodies specific for \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their detection,  
 diagnostic use and use in manufg. of vaccine)

IT Actinobacillus pleuropneumoniae

Bordetella bronchiseptica  
 Brachyspira hyodysenteriae  
 Erysipelothrix rhusiopathiae  
 Haemophilus parasuis  
 Mycoplasma hyopneumoniae  
 Pasteurella multocida  
 Porcine parvovirus  
 Porcine transmissible gastroenteritis virus  
 Pseudorabies virus  
 Rotavirus  
 Salmonella choleraesuis  
 Streptococcus suis  
 Swine influenza virus  
 (antigen from; vaccines composed of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins and/or DNA encoding said proteins, and antigens from various pig pathogens, such as)

IT Antigen  
 RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (from various pig pathogens; vaccines composed of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins and/or DNA encoding said proteins, and antigens from various pig pathogens, such as)

IT Immunity  
 (humoral; pigs immunized with vaccine composed of \*\*\*Lawsonia\*\*\* intracellularis 75-kDa, 44-kDa, 26/31-kDa and 27-kDa immunogenic proteins protected against challenge with L. intracellularis)

IT Diagnosis  
 (immunodiagnosis, using antibodies; antibodies specific for \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their detection,  
 diagnostic use and use in manufg. of vaccine)

IT Sus scrofa domestica  
 (pigs immunized with vaccine composed of \*\*\*Lawsonia\*\*\* intracellularis 75-kDa, 44-kDa, 26/31-kDa and 27-kDa immunogenic proteins protected against challenge with L. intracellularis)

IT Intestine, disease  
 (porcine proliferative; pigs immunized with vaccine composed of \*\*\*Lawsonia\*\*\* intracellularis 75-kDa, 44-kDa, 26/31-kDa and 27-kDa immunogenic proteins protected against challenge with L. intracellularis)

IT Escherichia coli  
 (transformed; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT Immunization  
 (vaccination; DNA and polypeptides of \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences and use in manufg. of vaccines against L. intracellularis)

IT 861866-19-5P 861866-21-9P 861866-23-1P 861866-25-3P 861866-27-5P  
 861866-29-7P 861866-31-1P 861866-34-4P 861866-36-6P  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (amino acid sequence; \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of vaccines)

IT 861866-20-8 861866-22-0 861866-24-2 861866-26-4 861866-28-6  
 861866-30-0 861866-32-2 861866-33-3 861866-35-5  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (nucleotide sequence; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 intracellularis immunogenic proteins, their sequences and use in  
 manufg. of vaccines against L. intracellularis)

IT 861867-47-2  
 RL: PRP (Properties)  
 (unclaimed nucleotide sequence; DNA and polypeptides of  
 \*\*\*Lawsonia\*\*\* intracellularis immunogenic proteins, their sequences  
 and use in manufg. of pig vaccines against L. intracellularis)

IT 861867-48-3 861867-49-4 861867-50-7 861867-51-8 861867-52-9  
 861867-53-0 861867-54-1 861867-55-2 861867-56-3 861867-57-4  
 861867-58-5 861867-59-6 861867-60-9 861867-61-0 861867-62-1  
 861867-63-2 861867-64-3  
 RL: PRP (Properties)  
 (unclaimed sequence; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 intracellularis immunogenic proteins, their sequences and use in  
 manufg. of pig vaccines against L. intracellularis)

L2 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2005:547615 CAPLUS <<LOGINID::20100916>>  
 DN 143:76807  
 TI \*\*\*Lawsonia\*\*\* intracellularis 26 kDa subunit vaccine  
 IN \*\*\*Vermeij, Paul\*\*\*  
 PA Akzo Nobel N. V., Neth.  
 SO PCT Int. Appl., 32 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005056586	A1	20050623	WO 2004-EP53342	20041208
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2004297018	A1	20050623	AU 2004-297018	20041208
	CA 2548750	A1	20050623	CA 2004-2548750	20041208
	EP 1694698	A1	20060830	EP 2004-820075	20041208
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
	BR 2004017440	A	20070306	BR 2004-17440	20041208
	JP 2007537715	T	20071227	JP 2006-543544	20041208
	US 20070212373	A1	20070913	US 2006-580709	20060525
	MX 2006006282	A	20061211	MX 2006-6282	20060602
	CN 101124241	A	20080213	CN 2004-80036743	20060609
	KR 2006112674	A	20061101	KR 2006-713035	20060629

PRAI EP 2003-104603           A       20031209  
WO 2004-EP53342           W       20041208

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB    The present invention relates to nucleic acids encoding novel L. intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA mols., and live recombinant carriers comprising these sequences. It also relates to host cells comprising such nucleic acids, DNA fragments, recombinant DNA mols., and live recombinant carriers. Moreover, the invention relates to proteins encoded by these nucleotide sequences and to their use for the manufg. of vaccines for combating L. intracellularis infections and methods for the prepn. thereof. Finally the invention relates to diagnostic tests for the detection of L. intracellularis antigens and of antibodies against L. intracellularis.

OSC.G   1       THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

RE.CNT   4       THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
                  ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI       \*\*\*Lawsonia\*\*\*   intracellularis 26 kDa subunit vaccine

IN       \*\*\*Vermeij, Paul\*\*\*

ST       \*\*\*Lawsonia\*\*\*   subunit vaccine sequence infection diagnosis; DNA sequence 26 kilodalton protein   \*\*\*Lawsonia\*\*\*

IT       Proteins  
          RL: BSU (Biological study, unclassified); PAC (Pharmacological activity); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
          (26 kDa;   \*\*\*Lawsonia\*\*\*   intracellularis subunit vaccine sequences, vaccine prepn. and use in pigs, and diagnostic test for detection of \*\*\*Lawsonia\*\*\*   antibodies and antigens)

IT       Actinobacillus pleuropneumoniae  
          Bordetella bronchiseptica  
          Brachyspira hyodysenteriae  
          Erysipelothrix rhusiopathiae  
          Escherichia coli  
          Haemophilus parasuis  
          Mycoplasma hyopneumoniae  
          Pasteurella multocida  
          Porcine parvovirus  
          Porcine transmissible gastroenteritis virus  
          Pseudorabies virus  
          Rotavirus  
          Salmonella cholerasuis  
          Streptococcus suis  
          Swine influenza virus  
          (   \*\*\*Lawsonia\*\*\*   intracellularis subunit vaccine contg. addnl. microorganism antigens and use thereof in pigs)

IT       Animal virus  
          Blood analysis  
          DNA sequences  
          Diagnosis  
          \*\*\*Lawsonia\*\*\*   intracellularis  
          Microorganism  
          Protein sequences  
          Sus scrofa domestica  
          Vaccines  
          (   \*\*\*Lawsonia\*\*\*   intracellularis subunit vaccine sequences, vaccine prepn. and use in pigs, and diagnostic test for detection of \*\*\*Lawsonia\*\*\*   antibodies and antigens)

IT       Antibodies and Immunoglobulins

Antigens  
 RL: ANT (Analyte); ANST (Analytical study)  
 ( \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine sequences, vaccine  
 prepn. and use in pigs, and diagnostic test for detection of  
 \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT DNA  
 Nucleic acids  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 ( \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine sequences, vaccine  
 prepn. and use in pigs, and diagnostic test for detection of  
 \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT Promoter (genetic element)  
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES  
 (Uses)  
 ( \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine sequences, vaccine  
 prepn. and use in pigs, and diagnostic test for detection of  
 \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT Immunostimulants  
 (adjuvants; \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 sequences, vaccine prepn. and use in pigs, and diagnostic test for  
 detection of \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT Drug delivery systems  
 (carriers; \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 sequences, vaccine prepn. and use in pigs, and diagnostic test for  
 detection of \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT Diagnosis  
 (serodiagnosis; \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 sequences, vaccine prepn. and use in pigs, and diagnostic test for  
 detection of \*\*\*Lawsonia\*\*\* antibodies and antigens)

IT 854792-42-0  
 RL: BSU (Biological study, unclassified); PAC (Pharmacological activity);  
 PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES  
 (Uses)  
 (amino acid sequence; \*\*\*Lawsonia\*\*\* intracellularis subunit  
 vaccine contg. addnl. microorganism antigens and use thereof in pigs)

IT 854792-41-9  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 (nucleotide sequence; \*\*\*Lawsonia\*\*\* intracellularis subunit  
 vaccine contg. addnl. microorganism antigens and use thereof in pigs)

IT 854793-33-2 854793-34-3  
 RL: PRP (Properties)  
 (unclaimed sequence; \*\*\*lawsonia\*\*\* intracellularis 26 kDa subunit  
 vaccine)

L2 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN  
 AN 2005:260093 CAPLUS <<LOGINID::20100916>>  
 DN 142:334910  
 TI \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine for treatment of  
 porcine proliferative enteropathy in pigs  
 IN \*\*\*Vermeij, Paul\*\*\*  
 PA Akzo Nobel N.V., Neth.  
 SO PCT Int. Appl., 55 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English



FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2005026200	A2	20050324	WO 2004-EP9995	20040908	
	WO 2005026200	A3	20050623			
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW		
	RW:			BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG		
	AU 2004272246	A1	20050324	AU 2004-272246	20040908	
	CA 2536989	A1	20050324	CA 2004-2536989	20040908	
	EP 1664100	A2	20060607	EP 2004-764938	20040908	
	EP 1664100	B1	20091202			
	R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK		
	CN 1849334	A	20061018	CN 2004-80026174	20040908	
	BR 2004013857	A	20061024	BR 2004-13857	20040908	
	JP 2007527706	T	20071004	JP 2006-525752	20040908	
	AT 450545	T	20091215	AT 2004-764938	20040908	
	ES 2335668	T3	20100331	ES 2004-764938	20040908	
	US 20060286118	A1	20061221	US 2006-571490	20060309	
	US 7662390	B2	20100216			
	MX 2006002850	A	20060614	MX 2006-2850	20060310	
	KR 2006129163	A	20061215	KR 2006-704981	20060310	
PRAI	EP 2003-77861	A	20030912			
	WO 2004-EP9995	W	20040908			

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention relates to nucleic acid sequences encoding novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA mols., and live recombinant carriers comprising these sequences. Also, it relates to host cells comprising such nucleic acid sequences, DNA fragments, recombinant DNA mols., and live recombinant carriers. Moreover, the invention relates to proteins encoded by these nucleotide sequences and to their use for the manufg. of vaccines. The invention also relates to vaccines for combating L. intracellularis infections and methods for the prepn. thereof. Finally the invention relates to diagnostic tests for the detection of L. intracellularis DNA, the detection of L. intracellularis antigens, and of antibodies against L. intracellularis. The example presented relates to cloning of \*\*\*Lawsonia\*\*\* genes in T7-based expression vectors, expression of \*\*\*Lawsonia\*\*\* genes from T7 promoter in Escherichia coli, and anal. of expression products by western blot.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine for treatment of porcine proliferative enteropathy in pigs  
IN \*\*\*Vermeij, Paul\*\*\*  
AB The present invention relates to nucleic acid sequences encoding novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA mols., and live recombinant carriers comprising

these sequences. Also, it. . . DNA, the detection of L. intracellularis antigens, and of antibodies against L. intracellularis. The example presented relates to cloning of \*\*\*Lawsonia\*\*\* genes in T7-based expression vectors, expression of \*\*\*Lawsonia\*\*\* genes from T7 promoter in Escherichia coli, and anal. of expression products by western blot.

- ST     \*\*\*Lawsonia\*\*\*     subunit vaccine pig proliferative enteropathy; sequence
- \*\*\*Lawsonia\*\*\*     subunit vaccine
- IT     Diagnosis
  - ( \*\*\*Lawsonia\*\*\*     intracellularis DNA, antigens, and antibodies
  - detection for infection diagnosis in pigs)
- IT     Actinobacillus pleuropneumoniae
- Bordetella bronchiseptica
- DNA sequences
- Erysipelothrix rhusiopathiae
- Escherichia coli
- Haemophilus parasuis
  - \*\*\*Lawsonia\*\*\*     intracellularis
- Mycoplasma hyopneumoniae
- Pasteurella multocida
- Porcine parvovirus
- Porcine transmissible gastroenteritis virus
- Protein sequences
- Pseudorabies virus
- Rotavirus
- Salmonella cholerasuis
- Streptococcus suis
- Sus scrofa domestica
- Swine influenza virus
- Vaccines
  - ( \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for treatment of
  - porcine proliferative enteropathy in pigs)
- IT     Antibodies and Immunoglobulins
  - RL: ANT (Analyte); ANST (Analytical study)
  - ( \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for treatment of
  - porcine proliferative enteropathy in pigs)
- IT     Promoter (genetic element)
  - RL: BSU (Biological study, unclassified); BIOL (Biological study)
  - ( \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for treatment of
  - porcine proliferative enteropathy in pigs)
- IT     Immunostimulants
  - (adjuvants;     \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for
  - treatment of porcine proliferative enteropathy in pigs)
- IT     Drug delivery systems
  - (carriers;     \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for
  - treatment of porcine proliferative enteropathy in pigs)
- IT     DNA
  - RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL
  - (Biological study); USES (Uses)
  - (fragments, live recombinant carriers;     \*\*\*Lawsonia\*\*\*
  - intracellularis subunit vaccine for treatment of porcine proliferative
  - enteropathy in pigs)
- IT     Antigens
  - RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL
  - (Biological study); USES (Uses)
  - (microbial;     \*\*\*Lawsonia\*\*\*     intracellularis subunit vaccine for
  - treatment of porcine proliferative enteropathy in pigs)

IT Intestine, disease  
 (porcine proliferative enteropathy; \*\*\*Lawsonia\*\*\* intracellularis  
 DNA, antigens, and antibodies detection for infection diagnosis in  
 pigs)

IT Diagnosis  
 (serodiagnosis; \*\*\*Lawsonia\*\*\* intracellularis DNA, antigens, and  
 antibodies detection for infection diagnosis in pigs)

IT 848387-35-9 848387-37-1 848452-45-9 848452-47-1 848452-49-3  
 848452-51-7  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 (amino acid sequence; \*\*\*Lawsonia\*\*\* intracellularis DNA, antigens,  
 and antibodies detection for infection diagnosis in pigs)

IT 848387-34-8 848387-36-0 848452-44-8 848452-46-0 848452-48-2  
 848452-50-6  
 RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
 (Biological study)  
 (nucleotide sequence; \*\*\*Lawsonia\*\*\* intracellularis DNA, antigens,  
 and antibodies detection for infection diagnosis in pigs)

IT 848452-52-8 848452-53-9 848452-54-0 848452-55-1 848452-56-2  
 848452-57-3 848452-58-4 848452-59-5 848452-60-8 848452-61-9  
 848452-62-0 848452-63-1  
 RL: PRP (Properties)  
 (unclaimed sequence; \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 for treatment of porcine proliferative enteropathy in pigs)

L2 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2010 ACS on STN

AN 2002:503432 CAPLUS <<LOGINID::20100916>>

DN 137:77871

TI Cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer  
 membrane proteins and their use in preparing vaccines for porcine  
 proliferative enteropathy

IN Jacobs, Antonius A. C.; \*\*\*Vermeij, Paul\*\*\*

PA Akzo Nobel N.V., Neth.; Intervet International BV

SO Eur. Pat. Appl., 26 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 1219711	A2	20020703	EP 2001-204919	20011214
	EP 1219711	A3	20021106		
	EP 1219711	B1	20060614		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	EP 1586646	A2	20051019	EP 2005-104073	20011214
	EP 1586646	A3	20070801		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	AT 330013	T	20060715	AT 2001-204919	20011214
	PT 1219711	E	20061031	PT 2001-204919	20011214
	ES 2266090	T3	20070301	ES 2001-204919	20011214
	CA 2365494	A1	20020620	CA 2001-2365494	20011218
	JP 2003000276	A	20030107	JP 2001-385373	20011219
	JP 4237960	B2	20090311		
	HU 2001005379	A2	20030128	HU 2001-5379	20011219

	HU 2001005379	A3	20040728		
	AU 2001097371	A	20020627	AU 2001-97371	20011220
	AU 783210	B2	20051006		
	US 20050069559	A1	20050331	US 2001-34500	20011220
	US 6921536	B2	20050726		
	US 20050250150	A1	20051110	US 2005-180997	20050713
	US 7491401	B2	20090217		
	PH 1200600523	A	20080519	PH 2006-1200600523	20061107
PRAI	EP 2000-204660	A	20001220		
	EP 2001-204919	A3	20011214		
	US 2001-34500	A3	20011220		
	US 2005-102182	B3	20050408		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The present invention relates i.a. to nucleic acid sequences encoding novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA mols. and live recombinant carriers comprising these sequences. Also it relates to host cells comprising such nucleic acid sequences, DNA fragments, recombinant DNA mols. and live recombinant carriers. Moreover, the invention relates to proteins encoded by these nucleotide sequences. The invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods for the prepn. thereof. Finally the invention relates to diagnostic tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and their use in preparing vaccines for porcine proliferative enteropathy

IN Jacobs, Antonius A. C.; \*\*\*Vermeij, Paul\*\*\*

AB The present invention relates i.a. to nucleic acid sequences encoding novel \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA fragments, recombinant DNA mols. and live recombinant carriers comprising these sequences. Also it. . . carriers. Moreover, the invention relates to proteins encoded by these nucleotide sequences. The invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods for the prepn. thereof. Finally the invention relates to diagnostic tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

ST \*\*\*Lawsonia\*\*\* outer membrane protein gene sequence; Porcine proliferative enteropathy vaccine \*\*\*Lawsonia\*\*\* outer membrane protein gene; recombinant bacteria \*\*\*Lawsonia\*\*\* outer membrane protein gene expression vaccine

IT Eubacteria

( \*\*\*Lawsonia\*\*\* OMP protein expression host; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Proteins

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(OMP (outer membrane protein), 19/21 kDa, of \*\*\*Lawsonia\*\*\* intracellularis; cloning of genes for novel \*\*\*Lawsonia\*\*\*

intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Proteins  
 RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (OMP (outer membrane protein), 37 kDa, of \*\*\*Lawsonia\*\*\* intracellularis; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Proteins  
 RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (OMP (outer membrane protein), 50 kDa, of \*\*\*Lawsonia\*\*\* intracellularis; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Actinobacillus pleuropneumoniae  
 Animal virus  
 Bordetella bronchiseptica  
 Erysipelothrix rhusiopathiae  
 Escherichia coli  
 Haemophilus parasuis  
 Mycoplasma hyopneumoniae  
 Pasteurella multocida  
 Porcine parvovirus  
 Porcine transmissible gastroenteritis virus  
 Pseudorabies virus  
 Rotavirus  
 Salmonella choleraesuis  
 Streptococcus suis  
 Swine influenza virus  
 (addnl. antigens of \*\*\*Lawsonia\*\*\* vaccines derived from; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Immunostimulants  
 (adjuvants, for \*\*\*Lawsonia\*\*\* OMP protein related vaccines; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Infection  
 (bacterial, of \*\*\*Lawsonia\*\*\* intracellularis; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Drug delivery systems  
 (carriers, for \*\*\*Lawsonia\*\*\* OMP protein related vaccines; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT DNA sequences  
 \*\*\*Lawsonia\*\*\* intracellularis  
 Molecular cloning  
 Protein sequences  
 (cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative

enteropathy)

IT Gene, microbial  
 RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (for OMP (outer membrane protein), of \*\*\*Lawsonia\*\*\* intracellularis; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Vaccines  
 (for porcine proliferative enteropathy (PPE); cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Promoter (genetic element)  
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (in regulation of recombinant \*\*\*Lawsonia\*\*\* OMP protein; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Diagnosis  
 (mol., of \*\*\*Lawsonia\*\*\* intracellularis infection or PPE; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Antigens  
 RL: BPN (Biosynthetic preparation); DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (of \*\*\*Lawsonia\*\*\* outer membrane proteins; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Microorganism  
 (pathogenic to pigs, addnl. antigens of \*\*\*Lawsonia\*\*\* vaccines derived from; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Intestine, disease  
 (porcine proliferative enteropathy (PPE); cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Antiserums  
 (to \*\*\*Lawsonia\*\*\* outer membrane proteins, from rabbit; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Antibodies and Immunoglobulins  
 RL: DGN (Diagnostic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (to \*\*\*Lawsonia\*\*\* outer membrane proteins; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT Sus scrofa domestica  
 (vaccines for; cloning of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and use in prepg. vaccines for porcine proliferative enteropathy)

IT 439914-48-4P 439914-50-8P 439914-52-0P  
 RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL

(Biological study); PREP (Preparation); USES (Uses)  
 (amino acid sequence of 19/21 kDa OMP protein internal peptide; cloning  
 of genes for novel \*\*\*Lawsonia\*\*\* intracellularis outer membrane  
 proteins and use in prepg. vaccines for porcine proliferative  
 enteropathy)

IT 440005-72-1P 440005-74-3P  
 RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified);  
 DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); BIOL  
 (Biological study); PREP (Preparation); USES (Uses)  
 (amino acid sequence; cloning of genes for novel \*\*\*Lawsonia\*\*\*  
 intracellularis outer membrane proteins and use in prepg. vaccines for  
 porcine proliferative enteropathy)

IT 440005-71-0 440005-73-2  
 RL: BSU (Biological study, unclassified); DGN (Diagnostic use); PRP  
 (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (nucleotide sequence; cloning of genes for novel \*\*\*Lawsonia\*\*\*  
 intracellularis outer membrane proteins and use in prepg. vaccines for  
 porcine proliferative enteropathy)

IT 440016-39-7 440016-40-0 440016-41-1 440016-42-2 440016-43-3  
 440016-44-4 440016-45-5  
 RL: PRP (Properties)  
 (unclaimed nucleotide sequence; cloning of genes for novel  
 \*\*\*Lawsonia\*\*\* intracellularis outer membrane proteins and their use  
 in prepg. vaccines for porcine proliferative enteropathy)

IT 439914-54-2 439914-56-4 439914-57-5 439914-59-7 439914-63-3  
 439914-65-5 439914-67-7 439914-71-3 439914-73-5 439914-75-7  
 439914-77-9 439914-79-1 439914-82-6 439914-87-1  
 RL: PRP (Properties)  
 (unclaimed sequence; cloning of genes for novel \*\*\*Lawsonia\*\*\*  
 intracellularis outer membrane proteins and their use in prepg.  
 vaccines for porcine proliferative enteropathy)

L2 ANSWER 10 OF 11 JAPIO (C) 2010 JPO on STN  
 AN 2003-000276 JAPIO <<LOGINID::20100916>>  
 TI \*\*\*LAWSONIA\*\*\* INTRACELLULIS VACCINE  
 IN JACOBS ANTONIUS ARNOLDUS C; \*\*\*VERMEIJ PAUL\*\*\*  
 PA AKZO NOBEL NV  
 PI JP 2003000276 A 20030107 Heisei  
 AI JP 2001-385373 (JP2001385373 Heisei) 20011219  
 PRAI EP 2000-204660 20001220  
 SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 2003  
 AB PROBLEM TO BE SOLVED: To develop methods for diagnosing, preventing and  
 treating swine proliferative intestinal diseases.  
 SOLUTION: This invention relates to nucleic acid sequences encoding novel  
 \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA  
 fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it relates to host cells comprising such  
 nucleic acid sequences, DNA fragments, recombinant DNA molecules and live  
 recombinant carriers. Moreover, the invention relates to proteins encoded  
 with these nucleotide sequences. The invention also relates to vaccines  
 for combating \*\*\*Lawsonia\*\*\* intracellularis infections and methods  
 for the preparation thereof. Finally, the invention relates to diagnostic  
 tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the  
 detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies  
 against \*\*\*Lawsonia\*\*\* intracellularis.  
 COPYRIGHT: (C)2003,JPO  
 TI \*\*\*LAWSONIA\*\*\* INTRACELLULIS VACCINE

IN JACOBS ANTONIUS ARNOLDUS C; \*\*\*VERMEIJ PAUL\*\*\*  
 AB . . . methods for diagnosing, preventing and treating swine  
 proliferative intestinal diseases.  
 SOLUTION: This invention relates to nucleic acid sequences encoding novel  
 \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA  
 fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it. . . carriers. Moreover, the  
 invention relates to proteins encoded with these nucleotide sequences. The  
 invention also relates to vaccines for combating \*\*\*Lawsonia\*\*\*  
 intracellularis infections and methods for the preparation thereof.  
 Finally, the invention relates to diagnostic tests for the detection of  
 \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of \*\*\*Lawsonia\*\*\*  
 intracellularis antigens and of antibodies against \*\*\*Lawsonia\*\*\*  
 intracellularis.  
 COPYRIGHT: (C)2003,JPO

L2 ANSWER 11 OF 11 LIFESCI COPYRIGHT 2010 CSA on STN  
 AN 2010:177502 LIFESCI

TI \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 AU \*\*\*Vermeij, Paul\*\*\*

DT Patent  
 FS N; A; J  
 LA English

AB The present invention relates to nucleic acid sequences encoding novel  
 \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA  
 fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it relates to host cells comprising such  
 nucleic acid sequences, DNA fragments, recombinant DNA molecules and live  
 recombinant carriers. Moreover, the invention relates to proteins encoded  
 by these nucleotide sequences and to their use for the manufacturing of  
 vaccines. The invention also relates to vaccines for combating  
 \*\*\*Lawsonia\*\*\* intracellularis infections and methods for the  
 preparation thereof. Finally the invention relates to diagnostic tests for  
 the detection of \*\*\*Lawsonia\*\*\* intracellularis DNA, the detection of  
 \*\*\*Lawsonia\*\*\* intracellularis antigens and of antibodies against  
 \*\*\*Lawsonia\*\*\* intracellularis.

TI \*\*\*Lawsonia\*\*\* intracellularis subunit vaccine  
 AU \*\*\*Vermeij, Paul\*\*\*

AB The present invention relates to nucleic acid sequences encoding novel  
 \*\*\*Lawsonia\*\*\* intracellularis proteins. It furthermore relates to DNA  
 fragments, recombinant DNA molecules and live recombinant carriers  
 comprising these sequences. Also it. . . these nucleotide sequences and  
 to their use for the manufacturing of vaccines. The invention also relates  
 to vaccines for combating \*\*\*Lawsonia\*\*\* intracellularis infections  
 and methods for the preparation thereof. Finally the invention relates to  
 diagnostic tests for the detection of \*\*\*Lawsonia\*\*\* intracellularis  
 DNA, the detection of \*\*\*Lawsonia\*\*\* intracellularis antigens and of  
 antibodies against \*\*\*Lawsonia\*\*\* intracellularis.

UT Antibodies; DNA; Infection; Nucleotide sequence; Vaccines; nucleic acids;  
 \*\*\*Lawsonia\*\*\* ; \*\*\*Lawsonia\*\*\* intracellularis

=> s lawsonia and intracellularis and vaccin?

L3 197 LAWSONIA AND INTRACELLULARIS AND VACCIN?

=> dup rem l3

PROCESSING COMPLETED FOR L3



L4 122 DUP REM L3 (75 DUPLICATES REMOVED)

=> s l4 and ((75 kd?)or(gene 5074)or(27 kd?)or(gene 5669)or(62 kd?)or(gene 4423)or(57 kd?)or(gene 3123)or(74 kd?)or(gene 5293)or(44 kd?)or(gene 5464)or(43 kd?)or(gene 5473)or(gene 4320) or(101 kd?)or(gene 2008))

L5 3 L4 AND ((75 KD?) OR(GENE 5074) OR(27 KD?) OR(GENE 5669) OR(62 KD?) OR(GENE 4423) OR(57 KD?) OR(GENE 3123) OR(74 KD?) OR(GENE 5293) OR(44 KD?) OR(GENE 5464) OR(43 KD?) OR(GENE 5473) OR(GENE 4320) OR(101 KD?) OR(GENE 2008))

=> dup rem l5

PROCESSING COMPLETED FOR L5

L6 3 DUP REM L5 (0 DUPLICATES REMOVED)

=> d bib ab kwic 1-

YOU HAVE REQUESTED DATA FROM 3 ANSWERS - CONTINUE? Y/(N):y

L6 ANSWER 1 OF 3 CABA COPYRIGHT 2010 CABI on STN

AN 2010:191515 CABA <<LOGINID::20100916>>

DN 20103183448

TI Analysis of antigenicity in four antigenic candidate genes of  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* GXNN strain

AU Xiao AiHuan; Xie LiHua; Liao ChengQiu; Lan JiaNuan; Li MaoNing; Hou ShaoYi; Lu ShiYong; Huang WeiJian; Xiao, A. H.; Xie, L. H.; Liao, C. Q.; Lan, J. N.; Li, M. N.; Hou, S. Y.; Lu, S. Y.; Huang, W. J.

CS College of Animal Science and Technology, Guangxi University, Nanning 530005, China. huangweijian-1@163.com

SO Guangxi Agricultural Sciences, (2010) Vol. 41, No. 1, pp. 62-65. 6 ref.  
Publisher: Editorial Department of Guangxi Agricultural Sciences. Guangxi ISSN: 1002-8161

URL: <http://www.gxaas.net>

CY China

DT Journal

LA Chinese

SL English

ED Entered STN: 9 Aug 2010

Last Updated on STN: 9 Aug 2010

AB According to the associated protein sequences of \*\*\*Lawsonia\*\*\* intracellularis published in GenBank, four pairs of primers were designed and the genes of three outer membrane proteins and one ectal lipoprotein were amplified. After constructing the prokaryotic expression vectors for four antigenic candidate genes, the prokaryotic expression, SDS-PAGE electrophoresis and Western blotting analysis were performed. The results showed that two recombination fusion proteins pET32a-LI0902 and pET32a-LI1022 could be expressed and \*\*\*57\*\*\* \*\*\*kDa\*\*\* and 37 kDa band was obtained by SDS-PAGE electrophoresis, respectively. The Western blotting analysis results showed that pET32a-LI1022 had antigenicity. These results for the first time proved that whether outer membrane proteins of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* had antigenicity or not, and would provide theoretical basis for developing diagnostic kit and genetically engineered \*\*\*vaccine\*\*\*.

TI Analysis of antigenicity in four antigenic candidate genes of  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* GXNN strain.

AB According to the associated protein sequences of \*\*\*Lawsonia\*\*\* intracellularis published in GenBank, four pairs of primers were designed and the genes of three outer membrane proteins and one. . . Western

blotting analysis were performed. The results showed that two recombination fusion proteins pET32a-LI0902 and pET32a-LI1022 could be expressed and \*\*\*57\*\*\* \*\*\*kDa\*\*\* and 37 kDa band was obtained by SDS-PAGE electrophoresis, respectively. The Western blotting analysis results showed that pET32a-LI1022 had antigenicity. These results for the first time proved that whether outer membrane proteins of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* had antigenicity or not, and would provide theoretical basis for developing diagnostic kit and genetically engineered \*\*\*vaccine\*\*\*.

BT \*\*\*Lawsonia\*\*\* (Bacteria); Desulfovibrionaceae; Desulfovibrionales; Deltaproteobacteria; Proteobacteria; Bacteria; prokaryotes

ORGN \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*

L6 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2010 ACS on STN

AN 2005:696935 CAPLUS <<LOGINID::20100916>>

DN 143:192288

TI DNA and polypeptides of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use in manufacturing of pig \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\*

IN Vermeij, Paul

PA Akzo Nobel N. V., Neth.

SO PCT Int. Appl., 99 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005070958	A2	20050804	WO 2005-EP562	20050118
	WO 2005070958	A3	20051124		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,			SM
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2005206291	A1	20050804	AU 2005-206291	20050118
	AU 2005206291	B2	20100603		
	CA 2554472	A1	20050804	CA 2005-2554472	20050118
	EP 1709067	A2	20061011	EP 2005-701094	20050118
	EP 1709067	B1	20100609		
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS			
	BR 2005007017	A	20070605	BR 2005-7017	20050118
	JP 2007537721	T	20071227	JP 2006-550044	20050118
	AT 470673	T	20100615	AT 2005-701094	20050118
	MX 2006008217	A	20070523	MX 2006-8217	20060719
	KR 2006134054	A	20061227	KR 2006-715908	20060807
	US 20090053228	A1	20090226	US 2008-587067	20081105
PRAI	EP 2004-100202	A	20040122		
	EP 2004-100203	A	20040122		
	EP 2004-100204	A	20040122		

EP 2004-100205	A	20040122
EP 2004-100206	A	20040122
EP 2004-100208	A	20040122
EP 2004-100209	A	20040122
EP 2004-100210	A	20040122
EP 2004-100211	A	20040122
WO 2005-EP562	W	20050118

# ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB The invention provides DNA mols. and polypeptides of various  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins that were  
 demonstrated to bind to polyclonal pig and chicken serum. The invention  
 relates that said immunogenic proteins possessed mol. wts. of  
 75-kilodaltons (kDa), \*\*\*27\*\*\* - \*\*\*kDa\*\*\* , \*\*\*62\*\*\* - \*\*\*kDa\*\*\*  
 , \*\*\*57\*\*\* - \*\*\*kDa\*\*\* , \*\*\*74\*\*\* - \*\*\*kDa\*\*\* , \*\*\*44\*\*\* -  
 \*\*\*kDa\*\*\* , \*\*\*43\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*101\*\*\* -  
 \*\*\*KDa\*\*\* , based on SDS-PAGE gel electrophoresis. The invention also  
 provides for the use of said DNA mols. and polypeptides in manufg. of a  
 \*\*\*vaccine\*\*\* for combating L. \*\*\*intracellularis\*\*\* infections in  
 pigs by inducing humoral immunity. The invention further provides  
 antibodies specific for said L. \*\*\*intracellularis\*\*\* immunogenic  
 proteins, their detection and their use in manufg. of a \*\*\*vaccine\*\*\*  
 and/or in diagnosis. Still further, the invention provides a  
 \*\*\*vaccine\*\*\* comprising said L. \*\*\*intracellularis\*\*\* DNA mols.

and

polypeptides and an addnl. antigen derived from pig pathogens, such as  
 viruses and/or microorganisms. Finally, the invention provides the DNA  
 and amino acid sequences of said L. \*\*\*intracellularis\*\*\* immunogenic  
 proteins. In the examples, the invention demonstrated that pigs immunized  
 with a recombinant \*\*\*vaccine\*\*\* compose of disclosed \*\*\*75\*\*\* -  
 \*\*\*kDa\*\*\* , \*\*\*44\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*27\*\*\* -  
 \*\*\*kDa\*\*\* immunogenic proteins were protected against an L.  
 \*\*\*intracellularis\*\*\* challenge.

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

TI DNA and polypeptides of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences and use in manufacturing of pig  
 \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\*

AB The invention provides DNA mols. and polypeptides of various  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins that were  
 demonstrated to bind to polyclonal pig and chicken serum. The invention  
 relates that said immunogenic proteins possessed mol. wts. of  
 75-kilodaltons (kDa), \*\*\*27\*\*\* - \*\*\*kDa\*\*\* , \*\*\*62\*\*\* - \*\*\*kDa\*\*\*  
 , \*\*\*57\*\*\* - \*\*\*kDa\*\*\* , \*\*\*74\*\*\* - \*\*\*kDa\*\*\* , \*\*\*44\*\*\* -  
 \*\*\*kDa\*\*\* , \*\*\*43\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*101\*\*\* -  
 \*\*\*KDa\*\*\* , based on SDS-PAGE gel electrophoresis. The invention also  
 provides for the use of said DNA mols. and polypeptides in manufg. of a  
 \*\*\*vaccine\*\*\* for combating L. \*\*\*intracellularis\*\*\* infections in  
 pigs by inducing humoral immunity. The invention further provides  
 antibodies specific for said L. \*\*\*intracellularis\*\*\* immunogenic  
 proteins, their detection and their use in manufg. of a \*\*\*vaccine\*\*\*  
 and/or in diagnosis. Still further, the invention provides a  
 \*\*\*vaccine\*\*\* comprising said L. \*\*\*intracellularis\*\*\* DNA mols.

and

polypeptides and an addnl. antigen derived from pig pathogens, such as  
 viruses and/or microorganisms. Finally, the invention provides the DNA  
 and amino acid sequences of said L. \*\*\*intracellularis\*\*\* immunogenic  
 proteins. In the examples, the invention demonstrated that pigs immunized  
 with a recombinant \*\*\*vaccine\*\*\* compose of disclosed \*\*\*75\*\*\* -

\*\*\*kDa\*\*\* , \*\*\*44\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*27\*\*\* -  
 \*\*\*kDa\*\*\* immunogenic proteins were protected against an L.  
 \*\*\*intracellularis\*\*\* challenge.

ST DNA sequence immunogenic protein gene \*\*\*Lawsonia\*\*\* use  
 \*\*\*vaccine\*\*\* ; \*\*\*Lawsonia\*\*\* antigen sequence recombinant prodn  
 use

\*\*\*vaccine\*\*\* diagnosis; antibody anti \*\*\*Lawsonia\*\*\* antigen use  
 diagnosis \*\*\*vaccine\*\*\* manuf; pig humoral immunity \*\*\*Lawsonia\*\*\*  
 immunogenic protein \*\*\*vaccine\*\*\*

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (101-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (2008; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (26/31-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (27-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (3123; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (43-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (4320; DNA and polypeptides of \*\*\*Lawsonia\*\*\*

\*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (44-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (4423; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (5074; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (5293; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (5464; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (5473; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Gene, microbial  
 RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic  
 use); BIOL (Biological study); USES (Uses)  
 (5669; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (57-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 immunogenic proteins, their sequences, recombinant prodn., diagnostic  
 detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic

use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (62-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (74-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Antigens  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (75-kilodalton; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT DNA sequences  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 Protein sequences  
 (DNA and polypeptides of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT \*\*\*Vaccines\*\*\*  
 (DNA and protein; DNA and polypeptides of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Molecular cloning  
 ( \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Promoter (genetic element)  
 RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
 ( \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT Immunostimulants  
 (adjuvants, of \*\*\*vaccine\*\*\* ; DNA and polypeptides of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT Antibodies and Immunoglobulins  
 RL: ANT (Analyte); ARG (Analytical reagent use); DGN (Diagnostic use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (anti-L. \*\*\*intracellularis\*\*\* antigen-specific; antibodies specific for \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their detection, diagnostic use and use in manufg. of \*\*\*vaccine\*\*\* )

IT Actinobacillus pleuropneumoniae  
 Bordetella bronchiseptica  
 Brachyspira hyodysenteriae

Erysipelothrix rhusiopathiae  
 Haemophilus parasuis  
 Mycoplasma hyopneumoniae  
 Pasteurella multocida  
 Porcine parvovirus  
 Porcine transmissible gastroenteritis virus  
 Pseudorabies virus  
 Rotavirus  
 Salmonella choleraesuis  
 Streptococcus suis  
 Swine influenza virus  
 (antigen from; \*\*\*vaccines\*\*\* composed of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins and/or DNA encoding said  
 proteins, and antigens from various pig pathogens, such as)

IT Antigens  
 RL: BPN (Biosynthetic preparation); THU (Therapeutic use); BIOL  
 (Biological study); PREP (Preparation); USES (Uses)  
 (from various pig pathogens; \*\*\*vaccines\*\*\* composed of  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins and/or  
 DNA encoding said proteins, and antigens from various pig pathogens,  
 such as)

IT Immunity  
 (humoral; pigs immunized with \*\*\*vaccine\*\*\* composed of  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* \*\*\*75\*\*\* - \*\*\*kDa\*\*\* ,  
 \*\*\*44\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*27\*\*\* - \*\*\*kDa\*\*\*  
 immunogenic proteins protected against challenge with L.  
 \*\*\*intracellularis\*\*\* )

IT Diagnosis  
 (immunodiagnosis, using antibodies; antibodies specific for  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their  
 detection, diagnostic use and use in manufg. of \*\*\*vaccine\*\*\* )

IT Sus scrofa domestica  
 (pigs immunized with \*\*\*vaccine\*\*\* composed of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* \*\*\*75\*\*\* - \*\*\*kDa\*\*\* , \*\*\*44\*\*\* -  
 \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*27\*\*\* - \*\*\*kDa\*\*\* immunogenic  
 proteins protected against challenge with L. \*\*\*intracellularis\*\*\* )

IT Intestine, disease  
 (porcine proliferative; pigs immunized with \*\*\*vaccine\*\*\* composed  
 of \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* \*\*\*75\*\*\* -  
 \*\*\*kDa\*\*\* , \*\*\*44\*\*\* - \*\*\*kDa\*\*\* , 26/31-kDa and \*\*\*27\*\*\* -  
 \*\*\*kDa\*\*\* immunogenic proteins protected against challenge with L.  
 \*\*\*intracellularis\*\*\* )

IT Escherichia coli  
 (transformed; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic  
 proteins, their sequences, recombinant prodn., diagnostic detection and  
 use in manufg. of \*\*\*vaccines\*\*\* )

IT Immunization  
 ( \*\*\*vaccination\*\*\* ; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
 in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT 861866-19-5P 861866-21-9P 861866-23-1P 861866-25-3P 861866-27-5P  
 861866-29-7P 861866-31-1P 861866-34-4P 861866-36-6P  
 RL: ANT (Analyte); ARG (Analytical reagent use); BPN (Biosynthetic  
 preparation); DGN (Diagnostic use); PRP (Properties); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); PREP  
 (Preparation); USES (Uses)  
 (amino acid sequence; \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*

immunogenic proteins, their sequences, recombinant prodn., diagnostic detection and use in manufg. of \*\*\*vaccines\*\*\* )

IT 861866-20-8 861866-22-0 861866-24-2 861866-26-4 861866-28-6  
861866-30-0 861866-32-2 861866-33-3 861866-35-5

RL: BUU (Biological use, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(nucleotide sequence; DNA and polypeptides of \*\*\*Lawsonia\*\*\*  
\*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
in manufg. of \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\* )

IT 861867-47-2

RL: PRP (Properties)

(unclaimed nucleotide sequence; dNA and polypeptides of  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* immunogenic proteins, their  
sequences and use in manufg. of pig \*\*\*vaccines\*\*\* against L.  
\*\*\*intracellularis\*\*\* )

IT 861867-48-3 861867-49-4 861867-50-7 861867-51-8 861867-52-9  
861867-53-0 861867-54-1 861867-55-2 861867-56-3 861867-57-4  
861867-58-5 861867-59-6 861867-60-9 861867-61-0 861867-62-1  
861867-63-2 861867-64-3

RL: PRP (Properties)

(unclaimed sequence; dNA and polypeptides of \*\*\*Lawsonia\*\*\*  
\*\*\*intracellularis\*\*\* immunogenic proteins, their sequences and use  
in manufg. of pig \*\*\*vaccines\*\*\* against L. \*\*\*intracellularis\*\*\*  
)

L6 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2010 ACS on STN

AN 2002:256061 CAPLUS <<LOGINID::20100916>>

DN 136:261820

TI Swine \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens

PA University of Arizona, Board of Regents, USA

SO PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002026250	A2	20020404	WO 2001-US30284	20010927
	WO 2002026250	A3	20030501		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	CA 2423588	A1	20020404	CA 2001-2423588	20010927
	AU 2001093151	A	20020408	AU 2001-93151	20010927
	EP 1324768	A2	20030709	EP 2001-973589	20010927
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
	HU 2003003655	A2	20040301	HU 2003-3655	20010927
	JP 2004529854	T	20040930	JP 2002-530080	20010927
	AU 2001293151	B2	20051201	AU 2001-293151	20010927



US 20060193874 A1 20060831 US 2005-181484 20050714  
PRAI US 2000-677108 A 20000929  
WO 2001-US30284 W 20010927

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A proliferative ileitis \*\*\*vaccine\*\*\* comprising tissue culture grown  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* and methods of making said  
\*\*\*vaccines\*\*\*. Proliferative ileitis \*\*\*vaccines\*\*\* described  
include those contg. whole L. \*\*\*intracellularis\*\*\*, exts. of L.  
\*\*\*intracellularis\*\*\*, protective immunogenic submits of L.  
\*\*\*intracellularis\*\*\*, recombinant immunogens of L.  
\*\*\*intracellularis\*\*\* and naked DNA of L. \*\*\*intracellularis\*\*\*.  
The \*\*\*vaccines\*\*\* of this invention may be inactivated or modified  
live and contain adjuvants and/or stabilizers. The \*\*\*vaccines\*\*\* of  
this invention may be in a liq. or lyophilized form. Also disclosed are  
monoclonal antibodies which neutralize the growth of L.  
\*\*\*intracellularis\*\*\* and which may be used for diagnosing

proliferative  
ileitis as well as for quantitating antigen during \*\*\*vaccine\*\*\*  
prodn.

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Swine \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens

AB A proliferative ileitis \*\*\*vaccine\*\*\* comprising tissue culture grown  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* and methods of making said  
\*\*\*vaccines\*\*\*. Proliferative ileitis \*\*\*vaccines\*\*\* described  
include those contg. whole L. \*\*\*intracellularis\*\*\*, exts. of L.  
\*\*\*intracellularis\*\*\*, protective immunogenic submits of L.  
\*\*\*intracellularis\*\*\*, recombinant immunogens of L.  
\*\*\*intracellularis\*\*\* and naked DNA of L. \*\*\*intracellularis\*\*\*.  
The \*\*\*vaccines\*\*\* of this invention may be inactivated or modified  
live and contain adjuvants and/or stabilizers. The \*\*\*vaccines\*\*\* of  
this invention may be in a liq. or lyophilized form. Also disclosed are  
monoclonal antibodies which neutralize the growth of L.  
\*\*\*intracellularis\*\*\* and which may be used for diagnosing

proliferative  
ileitis as well as for quantitating antigen during \*\*\*vaccine\*\*\*  
prodn.

ST \*\*\*vaccine\*\*\* proliferative ileitis \*\*\*Lawsonia\*\*\* antigen  
antibody swine

IT Antigens

RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(115-kDa; \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
antibodies in swine)

IT Antigens

RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(21-kDa; \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
antibodies in swine)

IT Antigens

RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(31-kDa; \*\*\*vaccines\*\*\* for proliferative ileitis comprising

\*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
 antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (41-kDa;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (      \*\*\*43\*\*\*      -      \*\*\*kDa\*\*\*      ;      \*\*\*vaccines\*\*\*      for proliferative  
          ileitis comprising      \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*  
          antigens which produce antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (      \*\*\*44\*\*\*      -      \*\*\*kDa\*\*\*      ;      \*\*\*vaccines\*\*\*      for proliferative  
          ileitis comprising      \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*  
          antigens which produce antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (60-kDa;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (71-kDa;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (>115-kDa;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Immunostimulants  
 (adjuvants;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Lipids, biological studies  
 Polymers, biological studies  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (as adjuvant;      \*\*\*vaccines\*\*\*      for proliferative ileitis comprising  
          \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which produce  
          antibodies in swine)

IT    Detergents  
 Heat  
 (as inactivating agent;      \*\*\*vaccines\*\*\*      for proliferative ileitis  
          comprising      \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*      antigens which  
          produce antibodies in swine)

IT    Temperature  
 (cold, as inactivating agent;      \*\*\*vaccines\*\*\*      for proliferative  
          ileitis comprising      \*\*\*Lawsonia\*\*\*      \*\*\*intracellularis\*\*\*  
          antigens which produce antibodies in swine)

IT Immunoassay  
 (enzyme-linked immunosorbent assay; \*\*\*vaccines\*\*\* for  
 proliferative ileitis comprising \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* antigens which produce antibodies in swine)

IT Inflammation  
 Intestine, disease  
 (ileitis, proliferative; \*\*\*vaccines\*\*\* for proliferative ileitis  
 comprising \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which  
 produce antibodies in swine)

IT Antibodies and Immunoglobulins  
 RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); ANST  
 (Analytical study); BIOL (Biological study); PREP (Preparation); USES  
 (Uses)  
 (monoclonal; \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
 antibodies in swine)

IT Emulsions  
 (oil-in-water, as adjuvant; \*\*\*vaccines\*\*\* for proliferative  
 ileitis comprising \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 antigens which produce antibodies in swine)

IT Diagnosis  
 Epitopes  
 Fluorescence immunoassay  
 Genetic vectors  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\*  
 PCR (polymerase chain reaction)  
 Sus scrofa domestica  
 \*\*\*Vaccines\*\*\*  
 ( \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
 antibodies in swine)

IT Antigens  
 RL: ANT (Analyte); PAC (Pharmacological activity); THU (Therapeutic use);  
 ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 ( \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
 antibodies in swine)

IT Antibodies and Immunoglobulins  
 DNA  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 ( \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
 \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
 antibodies in swine)

IT Emulsions  
 (water-in-oil-in-water, as adjuvant; \*\*\*vaccines\*\*\* for  
 proliferative ileitis comprising \*\*\*Lawsonia\*\*\*  
 \*\*\*intracellularis\*\*\* antigens which produce antibodies in swine)

IT 9003-01-4D, crosslinked  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (Carbopol, as adjuvant; \*\*\*vaccines\*\*\* for proliferative ileitis  
 comprising \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which  
 produce antibodies in swine)

IT 7784-30-7, Aluminum phosphate 10043-01-3, Aluminum sulfate 21645-51-2,  
 Aluminum hydroxide, biological studies 189200-69-9, Polygen  
 210692-07-2, Emulsigen 405075-93-6, Havlogen 405076-88-2, Emulsigen  
 Plus  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(as adjuvant; \*\*\*vaccines\*\*\* for proliferative ileitis comprising  
\*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which produce  
antibodies in swine)

IT 50-00-0, Formalin, biological studies 57-57-8, .beta.-Propiolactone  
27233-25-6, Ethylenimine dimer

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(as inactivating agent; \*\*\*vaccines\*\*\* for proliferative ileitis  
comprising \*\*\*Lawsonia\*\*\* \*\*\*intracellularis\*\*\* antigens which  
produce antibodies in swine)